

Committee on Earth Observation Satellites
17th Plenary Meeting
Colorado Springs, Colorado
November 19-20, 2003

CEOS/17/Utilization:
IUGG

Item 5.2

**Report of CEOS Meeting on
“Global Satellite Data Utilization Supporting Environmental Research,”
International Union of Geodesy and Geophysics (IUGG)**

SUMMARY AND PURPOSE

This utilization event was organized by the CEOS Chair and NASDA, and took place in Sapporo, Japan in July.

ACTION PROPOSED

The meeting is invited to take note of the information contained in this document.

CEOS Meeting on “Global Satellite Data Utilization Supporting Environmental Research”
International Union of Geodesy and Geophysics
Sapporo, Japan - July 8, 2003

Moderator:

Dr. Marie Colton – NOAA Satellites and Information

- Discussed the Committee on Earth Observation Satellites and its three main objectives in mission planning, international coordination and policy and technical information exchange.
- Discussed improved satellite data utilization as one of the goals of this year’s CEOS Chair Greg Withee, Assistant Administrator, NOAA Satellites and Information.
- Discussed the growing number of Earth observing satellites and the movement from research to operations as an impetus for choosing this topic as a goal.

Speakers/Presentations:

Dr. Harri Laakso, ESTEC, European Space Agency – Solar Terrestrial Science

- The big questions in the Sun Earth connection concern why does the sun vary, how does the Earth’s atmosphere respond to solar changes, and how affect does it have on us and our technology
- Early satellite measurements by Dynamics Explorer showed some of the upper atmosphere response to solar variability and magnetospheric processes and these effects are being assimilated in numerical models.
- The International Living With a Star program is a new and exciting program designed to describe and predict the responses of the Earth’s environment to changes in solar radiation and solar wind

Dr. Hiroshi Kawamura, Tohoku University, Japan – Ocean Science

- Large increase in the number of satellites measuring important ocean parameters including ocean surface topology, ocean wind vectors, ocean biology, geoid and salinity, sea ice, and sea surface temperature
- Some of the most interesting measurements are being made by GLI, SeaWinds and AMSR on ADEOS-II and MODIS and AMSR-E on EOS Aqua.
- These new observations are providing ocean discoveries as well as input to ocean models which are demonstrating the affects of ocean parameters on other environments and models, e.g. the deep water formation in the Sea of Japan causing changes in ocean winds.
- These data are contributing to the ocean theme and the coastal themes of the IGOS partnership

Dr. Chen Junyong, Wuhan University, China – Land/Earth Science

- Gave a presentation on behalf of Dr. Li Deren
- Discussed the growing use of land observation data within China and the variety of uses for such data.
- Discussed the importance of GPS system to land observations.

Dr. Jim Purdom, CIRA/Colorado State University – Atmospheric Science

- Discussed where we had come from to where we are today with a large number of satellites focused on studying the atmosphere.

- Discussed four notable successes where satellite data had had substantial impact: numerical weather prediction, hurricane and typhoons, convection and severe storm nowcasting, and climate assessment.
- Discussed obstacles to using all of this data for the global picture: problem of compatibility of data, large number of conventional observations in the Northern Hemisphere but not in the South, problems of transitioning research data to operational use.
- Discussed how scientific challenges were being addressed internationally such as international working groups and the Virtual Lab for satellite data utilization.

Questions and Answers

- *How do we get in? How are coalitions made with the research/university communities, especially in the era of the merging of research/operations satellites?*
 - Purdom – Part is governmental. Research agencies need to make more operations. Additionally, researchers need to participate in international working groups.
 - Kawamura – Most of ocean research is from research satellites. But organizations are trying to demonstrate operationally to help in the utilization of the data. Example is operational oceanography. You can now almost get data in real time
 - Laakso – One problem is measurements collected by our instruments cannot be easily interpreted by a student, and therefore a close connection to an instrument team member is essential. The instruments are highly specialized, and the calibration of data is done by the instrument teams. So, there are some opportunities, but it requires a contact with the instrument team.
 - Colton – if you have some specific data you are interested in, please let us know.
- *Regionally and temporally located data – how do I get to know which instrument is there?*
 - Purdom – We struggle. There is no centralized clearinghouse. As research to operations transition takes place, this may change for atmospheric data. The WMO is developing a database. There are lots of other issues too, orbital issues, data availability issues.
 - Kawamura – You need to look for a server with various sets of data. For example, the GODAE server is used for ocean data. There also may be the need for regional data centers.
 - Colton – I would suggest also checking out summary documents from international organizations for further information, such as the World Meteorological Organization and the Inter-governmental Oceanographic Commission.
- *Does CEOS see itself as needing to support a database of available data?*
 - Colton – We will refer that to the CEOS Working Group on Information Systems and Services.
- *Who decides/How is it decided which are Earth observing satellite and what are not? For example electro-magnetic satellites or gravity fields satellites such as GRACE/GPS. Is it possible to distribute this data via the CEOS network?*
 - Laakso – There are many more Earth observation satellites than I was able to mention in my presentation. There are some data centers for space physics that distribute measurements that are usually uncalibrated high-resolution data or calibrated summary data. It is probably the best that CEOS have links to these centers.
 - Purdom – It is up to the space agency as to how a satellite is classified. Both the satellites mentioned have hydrological applications and is important that they are not left out.
 - Kawamura – The ocean community appreciates the data from the satellites mentioned.
 - Colton – It is important that those satellites become affiliated with international organization as well, that helps in the recognition of the satellite as useful for Earth applications.